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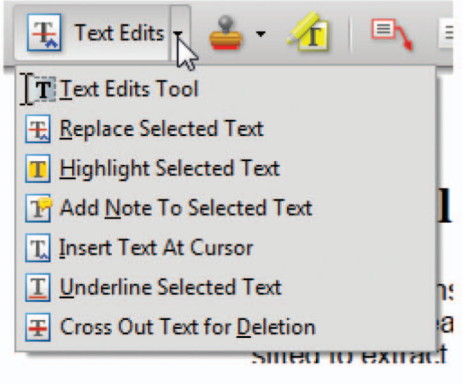

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Journal of Comparative Policy Analysis,
Vol. 15, No. 01, 1–19, Month 2012

Routledge
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Privatization in the Developing World

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AQ1 ABSTRACT *?????.*

The last four decades have witnessed the revision of the traditional relationship between the state and the productive sector. Triggered by the problems associated with state-led industrialization, many developing economies, from the 1970s onwards, began to adopt structural reforms that significantly reduced the presence of the state in the national economy. Privatization, the sale of state-owned assets, was centripetal to this process, and it has repeatedly proven to be a catalyst for fractious distributional and political battles (Przeworski 1991). The scale of state divestiture has been notable. Between 1988 and 1999, the average revenue generated by privatization was US$349 million per annum, per country, across 77 developing world economies. Between the years 2000 and 2008, privatization proceeds averaged US$399 million per annum, across 41 developing world countries. The decision of embattled administrations to sell, or re-nationalize, state-owned assets continues to generate heated debates. Given the political and economic importance of this issue, particularly in light of the current global economic downturn, it is essential that we understand what shapes the adoption and extent of privatization.

There is a large literature on privatization. In particular, the potential efficiency gain from privatization has received considerable attention from economists (see for example, Dewenter and Malatesta 2001). There are now a growing number of empirical studies that explore the determinants of privatization across countries and across time (see Boix 1997; Brune and Garrett 2000; Biglaiser and Danis 2002; Bortolotti, Fantini and Siniscalco 2003; Brune, Garrett and Kogut 2004; Meseguer 2004; Henisz, Zellner and Guillén 2005; Schneider, Fink and Tenbücken 2005; Murillo and Martínez-Gallardo 2007; Zohlnhöfer, Obinger and Wolf 2008; Doyle

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ISSN 1387-6988 Print/1572-5448 Online/12/0010001-22

http://dx.doi.org/10.1080/13876988.2013.741439

2010; Bjørnskov and Potrafke 2011). The majority of these studies, however, focus exclusively on the advanced industrialized nations and many of them have been hampered by methodological limitations coupled with the lack of reliable, comparable and temporal data on privatization. Consequently, quantitative studies have produced divergent explanations for cross-national variation in levels of state divestiture.

We build on this empirical literature, and contend that this divergence is partly rooted in the manner in which these studies operationalize privatization. Privatization is generally modeled as a single homogenous transaction and in addition, the measurement of state divestiture has tended to vary widely across this literature. In contrast, we argue that privatization is best modeled as a two-stage process.[1] There is the first stage, involving the initial decision to either adopt to reject privatization as a reform measure, followed by a second stage, concerning what to sell and how much. What is more, the incentives that shape the initial decision to privatize will not necessarily have a similar effect on the scale of state divestiture.

We utilize the comprehensive global dataset on privatization from the World Bank as a reliable cross-national and temporal measure of state divestiture. We model privatization as a two-stage process, involving an initial decision over whether or not to privatize, and a subsequent decision over the size of asset sales. Utilizing a probit model, together with a time-series cross-sectional model, we estimate the effect of endogenous and exogenous political and economic pressures on privatization across 77 developing world economies between the years 1988 and 1999, and 41 developing economies between the years 2000 and 2008. We find that the initial decision to privatize is largely shaped by exogenous variables, perhaps no surprise given the international context, while the scale of state divestiture is primarily a product of political battles and domestic economic realities.

The paper is structured as follows. The first section discusses trends in privatization around the world; the second section considers the empirical work on state divestiture, while the third section presents both the data and the method. The fourth section discusses the results of these estimations, while the final section presents the conclusion and discusses the wider implications of this research.

The Revenue from Privatization

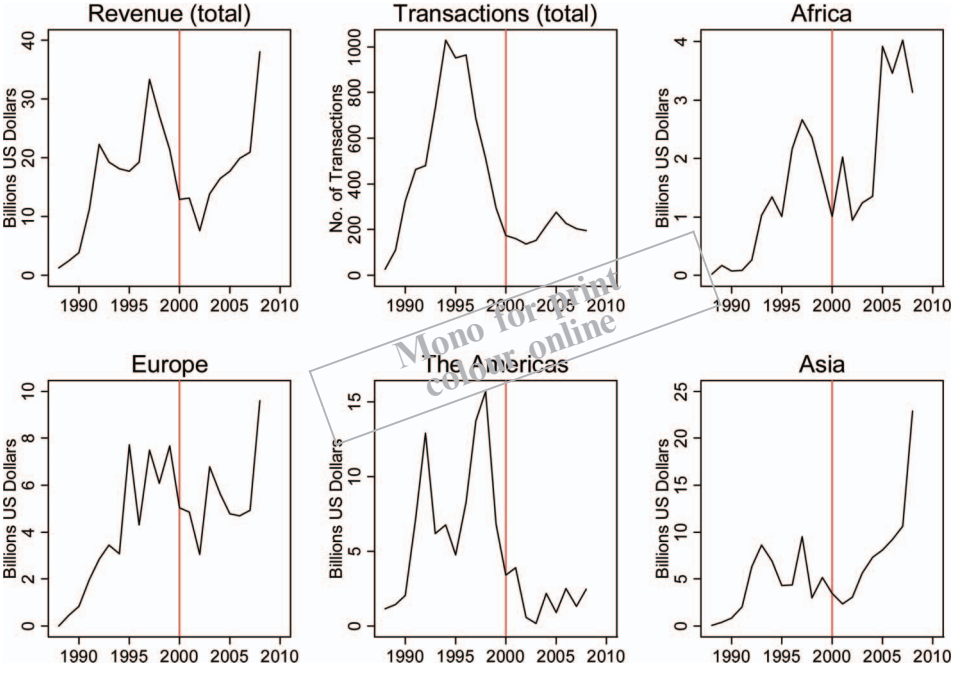
The World Bank has recorded the proceeds from individual privatization transactions, including full and partial divestitures, concessions, management contracts and leases since 1988.[2] From these individual transactions, we have constructed a time-series cross-sectional dataset covering 77 emerging economies between 1988 and 1999, and 41 developing economies from 2000 to 2008, with one observation on the proceeds of privatization, as a percentage of GDP, for each country, for each year in question.[3] It is important to note that privatization is a multifaceted concept. In this paper, we are interested in material transactions that generate revenue for the government from privatization, or private sector participation in an existing state-owned asset. Privatization can also encompass formal transactions, involving an amendment to the legal status of a company, but not share sales, and functional transactions, involving contracts such as public–private partnerships (see Zohlnhöfer, Obinger and Wolf 2008: 97).[4]

It was necessary to split the analysis into two periods, 1988–1999 and 2000–2008, as the data are qualitatively different in each period. In the earlier period, the World Bank has included voucher transactions and smaller transactions under $1 million. We split the sample because we were unable to identify all of the voucher transactions. Even if it were possible to do so, excluding them would sacrifice important variation in the data, as they were a central component of several waves of privatization in the 1990s. The comprehensive coverage of this data allows us to illustrate, in Figure 1, trends in privatization over the last two decades.

As can be seen from this graph, the revenue generated by national asset sales has increased, with some troughs, over time. In 1988, the first year of our sample, revenue from privatization amounted to a little over US$1.2 billion and involved only 14 countries, but by 1997, over 60 countries were engaged in privatization, generating some US$33 billion in total revenue for that year. In the early years of our second sample, while the total number of countries selling state assets fell, the revenues from privatization remained rather large. For example, for every year bar 2002, revenues from privatization exceeded US$10 billion. In fact, the largest single volume of revenue recorded in a given year, US$38 billion, was as recently as 2008.

There is also significant regional variation in privatization. The first region to generate significant revenue from privatization was Latin America, with a sharp initial peak in the early 1990s, driven by the rapid and aggressive privatization programs of Argentina and Mexico. Following a brief hiatus, revenues peaked again in the late 1990s, this time driven by the privatization program of Brazil and to a

Figure 1. Privatization across the globe.



lesser extent Colombia. Interestingly, revenues fell sharply after 1999, and remained quite low throughout our second sample period.[5]

In Africa, the initial adoption of privatization was far slower, and revenues far smaller. However, with the onset of privatization programs in Nigeria, Ghana, Egypt and Morocco from 1993, the proceeds from state divestiture across the region increased steadily, a trend maintained through the 1990s, as these countries were joined by South Africa, Tanzania and Senegal. From the early 2000s, we can observe a rather rapid increase in revenues, driven by large waves of privatization in Nigeria, the North African states of Egypt, Tunisia and Algeria, and in Ghana and Kenya to a lesser extent.

In the transition economies of Central and Eastern Europe, revenue increased until the mid-1990s, primarily driven by the small, but consistent privatization programs of Hungary and the Czech Republic, before revenues rose sharply, as Russia, Poland and Slovakia joined their neighbors in the sale of state assets. The temporary hiatus of privatization in Russia in the early 2000s caused a drop in revenue, but revenue soon climbed sharply again, as Bulgaria, Serbia and Romania began privatizing and Russia once again raised very large sums through asset sales.[6]

During the 1990s, privatization proceeds in Asia, like that of Latin America, displayed two distinct peaks. The first peak in the early 1990s can be explained by the onset of privatization programs in China, Indonesia, India and Malaysia, while the second peak, in the late 1990s, shortly after the East Asian financial crisis, can be partly explained by increased sales in China and Thailand. More significantly however, after 2000, we can observe a precipitous rise in the income raised by asset sales. The revenue during this period accounts for nearly half of all global proceeds from privatization. The burgeoning privatization programs of developing world giants, such as India and Pakistan and, most notably, China, drive this trend, and this near vertical increase in revenue across Asia shows no signs of abating.

Clearly then, privatization continues to remain an important source of revenue for national governments, but what explains these trends?

Why do States Privatize?

There is an extensive literature on privatization, the majority of which is primarily concerned with the economic utility of state divestiture (see Dewenter and Malatesta 2001).[7] There is a small but growing body of quantitative work that focuses on the causal factors driving privatization across countries and across time. This literature offers a number of explanations for state divestiture, the most prominent of which include partisanship (Boix 1997; Doyle 2010), the pressures of liberalization (Schneider, Fink and Tenbücken 2005), diffusion (Meseguer 2004), domestic economic conditions (Brune and Garrett 2000; Zohlnhöfer, Obinger and Wolf 2008) and the design of legal institutions (Bortolotti, Fantini and Siniscalco 2003).

We contribute to this empirical literature, and suggest that the different results produced by these quantitative studies can be partly explained by the operationalization of state divestiture as a single transaction in econometric estimations, involving a unitary decision process. We contend that privatization is best modeled as a two-stage process, involving an initial decision over whether to adopt

privatization or not, and if adopted as a reform measure, a subsequent decision over the scale and extent of what to divest (see also Meseguer 2004; Doyle 2010). What is more, at each stage of this process endogenous and exogenous variables will generate different incentives. Therefore, the factors that influence the initial decision to adopt privatization may not necessarily have a similar effect regarding the scale and extent of asset sales.

Let us consider the initial decision to select privatization as a reform measure. A national government, when contemplating such a move, will be confronted with a combination of incentives and constraints. Firstly, trade liberalization may place downward pressure on governments to adopt privatization. The logic is straightforward. Large state sectors cushion market mechanisms, distorting prices and wages. To sustain state sectors, governments must raise taxes or increase borrowing, thereby forcing interest rates to rise and depressing economic activity, deleteriously affecting output and employment (Garrett 1998: 792). Therefore, the efficiency concerns of increasing trade competition generate incentives to privatize. This pressure is exacerbated by the liberalization of capital controls. The imperative to attract mobile capital in today's globalized markets may convince national governments to implement privatization as a means to woo capital with investment opportunities, often at significantly reduced prices and in near-monopolistic market conditions. In fact, the empirical evidence of Schneider, Fink and Tenbücken (2005: 718–719) indicates that the main driver of infrastructure privatization in OECD states was the liberalization of capital markets.

Secondly, the initial decision to select privatization may be shaped by processes of international diffusion and emulation (Brune and Garrett 2004; Meseguer 2004). Governments may choose privatization as a consequence of bounded learning, or cognitive heuristics, whereby governments place exaggerated stock in a measure's superiority and simply adopt it wholesale, regardless of its relevance for their own context (Weyland 2005). Emulation can also be social, whereby states herd simply on the behavior of their peers (Meseguer 2004: 312). For developing countries, given the international context at the beginning of the 1990s, this incentive may have been exacerbated, due to the debt crisis in Latin America, and the process of market liberalization in Eastern Europe after the collapse of the Soviet Union. Emulative processes played a large role in the initiation of privatizations across Latin America (see Meseguer 2004; Doyle 2010), while peer dynamics had a significant effect on the adoption of pension privatization across Eastern Europe and Central Asia (see Brooks 2005).

The international financial institutions can also directly influence a government's decision to adopt privatization (Henisz, Zellner and Guillén 2005). The debt crises of the 1980s witnessed the IMF launch the first structural adjustment programs (SAPs), which included measures to liberalize, privatize and deregulate economic activity in borrowing countries (Henisz, Zellner and Guillén 2005: 872). Structural conditionality, of which privatization became an important component, went on to become a common feature of both IMF and World Bank programs. For both institutions, the principal rationale for privatization is the assumption that the private sector will be able to increase the efficiency of production (Biersteker 1990: 485). Conditionality, then, is a tool to pressure borrowing countries to privatize inefficient state enterprises and empirical evidence has demonstrated the positive correlation between the

likelihood of adopting majority privatization and exposure to multilateral lenders in 71 countries between 1977 and 1999 (Henisz, Zellner and Guillén 2005).

The initial decision to privatize will also be shaped by domestic politics. As privatization is often associated with fractious political processes, the potential political leverage privatization may afford, will affect the strategic behavior of governments and, consequently, the adoption of reform (Murillo and Martínez-Gallardo 2007). Domestic opposition, in the form of public sector unions and domestic export industries, will have to be overcome. For example, in India the militancy of public sector unions undermined repeated attempts to initiate privatization (Gupta 2008). In Argentina, during the administration of Raúl Alfonsín, some of the fiercest opposition to privatization came from the rent-seeking *patria contratistas* or *capitanes de la industria* (Captains of Industry) who benefited enormously from lucrative contracts with the public sector (Corrales 1998). In Kenya, Uganda and Tanzania, domestic industry was initially very hesitant to support privatization for fear their businesses would be unable to compete with privatized firms (Bennell 1997: 1797).

Initiating an unpopular measure such as privatization will also be partly a product of the institutional limitations that national governments face. For example, in Uruguay in 1992, the attempted privatization of the state telecom company, ANTEL, was prevented by public plebiscite, while in 2003, legislation to end the monopoly of the state oil company, ANCAP, was again overturned by referendum (see Bensión 2006). The probability of policy adoption is dependent upon the number of veto players in a political system, and the similarity of their preferences (Tsebelis 2002).

Finally, fiscal distress may prompt a government to adopt privatization. When heavily indebted, privatization can provide states with the means to pay creditors, to finance current expenditure and to reduce deficits (Bortolotti, Fantini and Siniscalco 2003: 309). The resultant reduced levels of external debt will send signals of credibility to the market, improving a country's credit rating and generating lower interest payments (Biglaiser and Brown 2003: 80). Likewise, stagnant or negative growth rates, or repeated bouts of price instability may induce states to consider divestiture (Biglaiser and Danis 2002: 91), as not only will such transactions generate much-needed revenue for the state, but also because privatization is often seen as a growth-stimulating measure (Zohlnhöfer, Obinger and Wolf 2008: 103).

Once the decision has been made to begin privatizing, governments are then faced with a second decision regarding how much to actually divest. What is more, what drives the initial decision to adopt privatization may not necessarily drive the scale of privatization revenue in a similar manner. Let us begin with the perspective of the seller. Once a national government has decided to privatize, electoral incentives will prompt governments to act strategically, and therefore the core clientele of the governing party will shape the decision of how much to sell. Left-leaning governments will be associated with lower volumes of privatization, given the negative dislocating effect that privatization will have on their core support (Boix 1997; Zohlnhöfer, Obinger and Wolf 2008; Doyle 2010, 2012; Bjørnskov and Potrafke 2011), while right-leaning parties will be associated with higher volumes of privatization (Boix 1997; Bortolotti, Fantini and Siniscalco 2003).

Secondly, the international financial institutions may also serve the very useful role of political alibi for much-needed reform (Vreeland 2003). In this scenario, governments, irrespective of their partisan hue, will attempt to ameliorate domestic political tensions by scapegoating the IMF for privatization. Governments enter into IMF agreements even when they do not need foreign exchange, in order to utilize IMF conditions to push through large privatizations (Vreeland 2003; Doyle 2012). Therefore, privatization revenues may prove to be larger when a government is part of an IMF agreement or indebted to a multilateral institution.

Thirdly, once the decision to privatize has been made, and privatizations have begun, the attitude of domestic interest groups may change considerably. For example, in Argentina, Menem, in order to overcome the opposition of rent-seeking indigenous industry, began to involve them in privatizations on highly preferential terms, and within a short time period domestic industry became vocal advocates of privatization (Treisman 2003: 97). In Mexico in the early 1990s, to pave the way for the sale of the state telecom company, TELMEX, the Carlos Salinas administration co-opted the union leaders with resources generated by this privatization (see Clifton 2000). In Ghana, the acquiescence of workers in state-owned firms was secured with guarantees of very large benefits (Bennell 1997: 1797), while in India, the ability to purchase shares in newly privatized firms increased support amongst the middle classes for the sale of state assets (Gupta 2008: 185–186).[8]

Finally, just as institutional limitations can hamper attempts to introduce privatization, the interests of veto players may impede the size and extent of national governments' privatization plans. Take the government of Victor Ciorbea in Romania in 1996 as an example. A range of veto players hostile to state divestiture, combined with weak institutional and bureaucratic structures, repeatedly hampered his administration's attempts to expand the scale of privatization (Pop-Eleches 2009: 230–233).

The revenue generated by privatization will also be shaped by the incentives that potential investors face. The scale of revenue may not just be driven by the coercive effects of conditionality per se, but also by the important signaling and credibility effects of conditionality. Participation in an IFI-sponsored program should send a positive signal to market actors who may be interested in undertaking the sort of long-term investment that privatization implies (Brune, Garrett and Kogut 2004). Evidence indicates that investors are willing to pay a premium for divested assets in countries that are subject to IMF conditionality, as they view conditionality as a signal of credible policy reform (Brune, Garrett and Kogut 2004).

The scale of privatization also rests on the ability of national governments to demonstrate a credible commitment to reform, thus ameliorating the fear of expropriation for potential investors. Without sufficient credibility, a government will simply find it too difficult to attract interest from buyers. Biglaiser and Danis (2002) for example, demonstrate that democratic regimes, due to the transparency of their legal institutions, durable constraints on political actors and respect for property rights, are associated with a greater propensity to privatize than their authoritarian counterparts. A well-functioning stock market, and a legal system that facilitates privatization transactions and protects the purchasers of divested state assets from future opportunistic behavior, are also necessary for the success of any privatization program (Bortolotti, Fantini and Siniscalco 2003). In addition, healthy

economic fundamentals can signal stability and sound economic governance, creating a far more hospitable investment climate (Brune and Garrett 2000; Biglaiser and Danis 2002).

The next section will discuss our empirical strategy for modeling privatization as the two-stage process described above.

Data and Method

We utilize the World Bank (2011) database on privatization as a cross-national measure of state divestiture. From this we have generated two unbalanced panel datasets, covering 77 developing economies during the period 1988–1999, and 41 developing economies during 2000–2008. In all of our statistical tests, the number of countries and observations is based on data availability. We model privatization as a two-stage process, and estimate a probit model together with a time-series, cross-sectional model, on both the decision to implement privatization, and the subsequent extent of asset sales.

The Variables

Our dependent variable, *privatization revenue as a percentage of GDP*, is taken from the World Bank's Privatization Database (World Bank 2011).[9] It has been used in previous studies (see Brune, Garrett and Kogut 2004) and allows us to differentiate among countries that have privatized in small quantities versus those that have undertaken large-scale privatization programs. As this variable is highly dispersed, we use its natural log transformation.

We build upon previous studies by considering two further measures: *privatization revenue as a percentage of employment* and *privatization as a percentage of value added*. This is to ensure that our analysis is sensitive to the different ways in which the implementation of privatization can affect the amount of revenue generated. Governments must select from a range of options including: initial public offerings on stock exchanges, cash auctions, auctions where the winner extends a loan to the government, investment tenders, the distribution of vouchers to the population, or the retention of 'golden shares'. Given this range of options, it is very likely that politics is decisive. For example, a left-leaning government might select a method of privatizing that protects workers but generates less revenue for the same asset as a right-leaning government that selected a strategy that generated more revenue at the expense of labor. It makes sense, therefore, to also examine *privatization as a percentage of employment*, and as *a percentage of value added* to account for variations in the way revenue is generated by the state.[10]

Although our dependent variable is a useful proxy for the scope of privatization, we argue privatization is best modeled as a two-stage process, whereby a government must first decide on whether or not to privatize in a given year, before deciding on the scope of asset sales. Therefore, to capture the first stage of the privatization process – that is, whether or not to select privatization as a reform measure – we utilize a simple binary variable, where a year in which a privatization transaction occurred is coded as '1' and all other years are coded as '0'.

In order to explain the cross-national variation in both the adoption and extent of state divestiture, we include a range of explanatory variables. Firstly, we consider one of the main challenges for quantitative studies on privatization: the initial size of the state-owned sector. Both the decision to privatize and the extent of any subsequent privatization should be influenced by the existing stock of state-owned enterprises. However, little cross-national data exists on this issue and previous studies have employed indices of economic freedom as proxies for the size of the state sector. One problem with such indices, however, is that countries with large state-owned sectors may score highly, as the indices also capture the quality of regulation and the business environment. We use *domestic credit to the private sector as a percentage of GDP*, from the World Bank's Development Indicators (2011). Although by no means a perfect proxy, it does allow us to control for the importance of the domestic private sector in an economy. However, this variable also has its issues. It may reflect the health of the banking system, rather than the size of the public sector.

Secondly, we capture exogenous pressures by controlling for *trade* and the level of *capital mobility*. Taken together, these variables capture the extent of a country's economic interdependence with the rest of the world. Trade is simply *imports plus exports as a percentage of GDP*, and is taken from the World Bank's Development Indicators (2011), while we use the Chinn and Ito (2008) index of capital account openness, based on information from the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions, in order to capture the degree of capital mobility.

Previous empirical studies have suggested that a relationship exists between the IMF and increased levels of privatization (Brune, Garrett and Kogut 2004). Therefore, we include *IMF credit as a percentage of GDP* in our specifications (World Bank 2011). This variable represents the reliance of some developing markets on IMF support. In line with previous research, we expect to find a positive and significant association between IMF lending and privatization revenue.

Thirdly, we consider the preferences of political actors, the structural characteristics of political systems, and the institutional make-up of the state. The decision to privatize has long been associated with political parties on the right. As a consequence, although this is a crude proxy, we control for the ideological orientation of the executive (right, center, left) (see Marshall and Jaggers 2002).[11] Second, we include a variable that accounts for the number of veto players that can potentially hamper government action on privatization. This is the *checks* variable from the database of political institutions (Beck et al. 2001). Third, we control for the effect of an election to the legislative or executive branch. Governments should wait until after an election to push through privatization measures in order to reduce the political backlash that might ensue. This is a dummy variable, coded as 1 for any year in which a presidential or legislative election was held (Beck et al. 2001).

We also consider the origin of a country's legal system and employ a dummy variable to control for British legal heritage. La Porta, López-de-Silanes and Shleifer (2008) find that legal heritage is correlated with a broad range of economic outcomes, including the protection of investors, shareholders and creditors from expropriation. For the most part, common law systems tend to provide greater

protection for investors, so we expect that countries with a British legal heritage will generate larger volumes of revenue from national asset sales.

Finally, we include several economic variables that capture long- and short-term domestic economic conditions, including *CPI inflation (logged), GDP growth (per cent), GDP per capita (constant USD, 2000, logged)* and *external debt as a percentage of GDP*. We expect for example, that a high level of inflation will prompt the state to divest public assets to combat economic malaise. By contrast, a high level of external debt might result in privatization in order to raise revenue for debt service and reduce the primary deficit. All of these variables are taken from the World Bank's Development Indicators (2011).

The Model

We model privatization in two stages: an initial stage involving decisions over whether or not to adopt privatization, followed by a second stage, involving decisions over how much to sell. One advantage of this approach is that many developing world states have never bothered with privatization. Without taking into consideration the profile of countries that never privatized, a statistical analysis would only capture some of the substantial variation in this outcome. It might even add bias, inflating the importance of the attributes of countries that privatized while ignoring specific attributes of those that did not. In other words, the decision to undertake privatization and the decision over the subsequent scope of privatization are not independent. In order to correctly analyze both decisions and the systematic relationship between each decision, we begin by estimating a probit model on the decision to privatize. We follow Carter and Signorino's advice (2010: 1559) and use cubic polynomial approximation to address the problem of time dependence in the binary data. From the probit model, we generate the inverse mills ratio – Heckman's (1979) correction. We include this as a control variable in the second stage of the statistical analysis, where our dependent variable is *privatization revenue* (as a percentage of GDP, employment and value-added). Doing this allows us to examine systematic differences between the countries that received something from privatization, and those that received nothing at all.

Although the Heckman selection model is appropriate for this task, it performs poorly without an exclusion restriction – a variable that enters the selection equation but does not enter the outcome equation (Sartori 2003: 112). We use *regional emulation* as our exclusion restriction. This variable measures the number of countries in the region that privatized in the previous year. It is a good exclusion restriction because it is unlikely to affect the actual scale of privatization. It would make little sense for a state to emulate the precise scale of its neighbors' efforts, when each faces a very different set of political, economic and social obstacles. Rather, it is more likely that diffusion operates at a more general level, pushing neighboring countries to adopt broadly similar strategies but adapt these strategies to their own unique circumstances. Therefore, the inclusion of this variable in the selection equation is justified on theoretical grounds and is not merely a practical measure to improve model fit.

In the second stage of our analysis, we utilize ordinary least squares (OLS) with panel-corrected standard errors to correct for panel heteroscedasticity and spatial

correlation (see Beck and Katz 1995). We do not include a lagged dependent variable in our models, as to do so would bias our estimator. Rather, we follow Achen (2000), who recommends leaving out the lagged dependent variable and correcting for first-order autocorrelation. We also repeat our specifications with fixed effects to account for possible time-invariant, country-specific unobserved factors that affect privatization. Finally, we lag all independent variables by one year to avoid simultaneity. The basic form of this equation is as follows:

$$\text{Re}venue_{it} = \alpha_i + b_{1it-1} + b_{2it-1} + \ldots + b_{nit-1} + \mu_{1it}$$

In the equation above, α represents country dummies, b is the parameter estimate for the independent variables, while μ represents the error term. The dependent variable will be observed if the γ of $PRIV_{\text{it}}$, that is the decision to privatize or not in a given year, plus the second error term, $u_{2it} > 0$, where:

$$u_1 \sim N(0, \sigma)$$
$$u_2 \sim \begin{matrix} N(0,1) \\ corr(u_1, u_2) = p \end{matrix}$$

Results

Tables 1 and 2 present our findings for 1988–1999 and 2000–2008, respectively. The first column of each table presents estimates from the probit model on the initial decision to privatize. The other columns present estimates using our three dependent variables. For each dependent variable, we specify three models: one with country-specific fixed-effects, another with the AR1 correction and another with both. The results are remarkably consistent across our three measures of privatization. For the most part, the coefficients maintain the same direction, level of statistical significance, and magnitude. One minor difference is that an increase in GDP per capita is associated with a slightly higher increase in revenue from privatization as a percentage of employment. This suggests that richer states might place fewer restrictions on sales in order to increase asset values because they are less interested in protecting workers.

Firstly, let us consider the relationship between the first stage, the initial decision to privatize, and the second stage, concerning the scope of state divestiture. Across every single specification of the TSCS models for the 1988–1999 sample, the selection effect from the probit model is statistically significant. Clearly, the decision to select privatization as a reform measure is related to the subsequent scale of asset sales, justifying our contention to model privatization as a two-stage process. However, in the second sample, 2000–2008, the selection effect does not reach levels of statistical significance, suggesting that the importance of deciding whether to adopt privatization or not has waned as this structural reform has become more widespread.

What is more, there are clearly different mechanics at play during the initial decision to adopt privatization, and the subsequent scale of state divestiture. The initial decision to choose privatization as a reform measure is largely a product of

Table 1. Privatization 1988–1999

	Probit estimates	Privatization/GDP			Privatization/Employment			Privatization/Value Added		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Private sector/GDP$_{t-1}$	0.02***	−0.03***	−0.01**	−0.03***	−0.03***	−0.01**	−0.03***	−0.01	−0.01	−0.01
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Inflation (log)$_{t-1}$	0.05	–0.11	−0.11	−0.11	−0.11	−0.12*	−0.11	−0.15*	−0.08	−0.15*
	(0.04)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.08)	(0.08)	(0.08)
Capital mobility$_{t-1}$	0.10**	−0.11	−0.01	−0.11	−0.11	−0.02	−0.11	−0.09	−0.06	−0.09
	(0.05)	(0.11)	(0.10)	(0.11)	(0.11)	(0.10)	(0.11)	(0.12)	(0.10)	(0.12)
Trade/GDP$_{t-1}$	−0.01***	0.01	0.01***	0.01	0.01	0.01***	0.01	0.01	0.01**	0.01
	(0.00)	(0.01)	(0.00)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.00)	(0.01)
External debt/GDP$_{t-1}$	−0.00*	0.02**	0.01***	0.02**	0.02**	0.01***	0.02**	0.01	0.01***	0.01
	(0.00)	(0.01)	(0.00)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.00)	(0.01)
GDP per capita (log)$_{t-1}$	0.17**	−0.13	0.20	−0.14	0.65	1.23***	0.65	−1.84	0.17	−1.78
	(0.08)	(0.98)	(0.13)	(0.99)	(0.98)	(0.14)	(0.98)	(1.55)	(0.11)	(1.52)
GDP growth (%)$_{t-1}$	0.02*	0.01	0.02	0.01	0.01	0.02	0.01	0.03	0.03	0.03
	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Checks$_{t-1}$	−0.01	−0.04	0.01	−0.04	−0.04	0.00	−0.04	−0.00	0.00	−0.00
	(0.03)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)	(0.04)	(0.06)
Election$_{t-1}$	−0.02	−0.40**	−0.47**	−0.40**	−0.41**	−0.47**	−0.41**	−0.36**	−0.36**	−0.37**
	(0.12)	(0.17)	(0.19)	(0.17)	(0.17)	(0.19)	(0.17)	(0.18)	(0.18)	(0.18)
Government ideology$_{t-1}$	0.08*	−0.50***	−0.10	−0.50***	−0.49***	−0.12	−0.49***	−0.48**	−0.01	−0.47**
	(0.04)	(0.18)	(0.08)	(0.18)	(0.18)	(0.08)	(0.18)	(0.19)	(0.12)	(0.19)
UK legal system	0.29**	3.18***	−0.29	3.18***	2.66*	−0.30	2.66*	−3.61	−0.52*	1.79
	(0.13)	(1.19)	(0.30)	(1.20)	(1.44)	(0.30)	(1.45)	(2.75)	(0.30)	(1.60)
IMF/GDP$_{t-1}$	0.05***	−0.04	0.04*	−0.04	−0.04	0.04	−0.04	0.01	0.06**	0.02
	(0.01)	(0.05)	(0.03)	(0.05)	(0.05)	(0.03)	(0.05)	(0.07)	(0.03)	(0.07)
Selection effects		−2.06***	−1.30**	−2.06***	−2.07***	−1.29**	−2.07***	−1.58**	−1.19*	−1.60**
		(0.63)	(0.62)	(0.63)	(0.63)	(0.60)	(0.63)	(0.69)	(0.64)	(0.68)
Exclusion restriction	0.07***									
	(0.01)									
Observations	720	378	378	378	377	377	377	309	309	309
R-squared		0.516	0.281	0.516	0.666	0.357	0.665	0.552	0.278	0.555
chi2	150	17293	219	5729	3201	114714	9489	382	217	1792
AR1	N/A	N	Y	Y	N	Y	Y	N	Y	Y
Fixed effects	N/A	Y	N	Y	Y	N	Y	Y	N	Y
No. countries		77	77	77	76	76	76	62	62	62

Standard errors in parentheses. Time controls for probit model not displayed. ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

Table 2. Privatization 2000–2008

	Probit estimates	Privatization/GDP			Privatization/Employment			Privatization/Value Added		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Private sector/GDP$_{t-1}$	0.00	0.01	−0.01***	0.02	0.01	−0.01***	0.02	0.01	−0.01***	0.02
	(0.00)	(0.03)	(0.00)	(0.03)	(0.03)	(0.00)	(0.03)	(0.03)	(0.00)	(0.03)
Inflation (log)$_{t-1}$	0.02	−0.48**	−0.22*	−0.53**	−0.49**	−0.24*	−0.54***	−0.48**	−0.23*	−0.53**
	(0.06)	(0.21)	(0.13)	(0.21)	(0.22)	(0.13)	(0.21)	(0.21)	(0.13)	(0.21)
Capital mobility$_{t-1}$	0.03	−0.38	0.04	−0.38*	−0.39*	0.03	−0.39*	−0.38	0.04	−0.38*
	(0.05)	(0.23)	(0.05)	(0.22)	(0.23)	(0.05)	(0.22)	(0.23)	(0.05)	(0.22)
Trade/GDP$_{t-1}$	−0.01***	0.03	0.01***	0.03	0.03	0.02***	0.03	0.03	0.02***	0.03
	(0.00)	(0.02)	(0.00)	(0.02)	(0.02)	(0.00)	(0.02)	(0.02)	(0.00)	(0.02)
External debt/GDP$_{t-1}$	−0.00	−0.00	0.01	−0.01	−0.00	0.01	−0.01	−0.00	0.01	−0.01
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
GDP per capita (log)$_{t-1}$	0.31***	5.16***	0.04	5.42***	6.19***	1.05***	6.45***	5.16***	0.05	5.42***
	(0.08)	(1.73)	(0.19)	(1.64)	(1.73)	(0.19)	(1.64)	(1.73)	(0.19)	(1.63)
GDP growth (%)$_{t-1}$	0.04***	−0.14*	0.05	−0.16**	−0.14*	0.03	−0.16**	−0.14*	0.04	−0.16**
	(0.02)	(0.08)	(0.03)	(0.08)	(0.08)	(0.03)	(0.08)	(0.08)	(0.03)	(0.08)
Checks$_{t-1}$	0.06	−0.27***	−0.11*	−0.29***	−0.28***	−0.11*	−0.30***	−0.27***	−0.11*	−0.29***
	(0.04)	(0.07)	(0.06)	(0.06)	(0.07)	(0.07)	(0.06)	(0.07)	(0.06)	(0.06)
Election$_{t-1}$	−0.29**	−0.81***	−0.60**	−0.87***	−0.82***	−0.60**	−0.87***	−0.81***	−0.59**	−0.86***
	(0.13)	(0.26)	(0.29)	(0.27)	(0.26)	(0.29)	(0.27)	(0.26)	(0.29)	(0.27)
Government ideology$_{t-1}$	0.08*	0.26	−0.25***	0.31*	0.26	−0.29***	0.30*	0.26	−0.25***	0.30*
	(0.05)	(0.21)	(0.09)	(0.18)	(0.21)	(0.09)	(0.18)	(0.21)	(0.09)	(0.18)
UK legal system	0.09	−3.77***	0.13	−8.02**	−3.68***	0.25	10.69***	−3.75***	0.12	10.20***
	(0.15)	(1.28)	(0.34)	(3.77)	(1.28)	(0.35)	(2.71)	(1.28)	(0.34)	(2.69)
IMF/GDP$_{t-1}$	0.07***	0.01	−0.05	0.03	0.02	−0.05	0.04	0.01	−0.05	0.03
	(0.02)	(0.08)	(0.05)	(0.08)	(0.08)	(0.05)	(0.08)	(0.08)	(0.05)	(0.08)
Selection effects		−0.66	0.30	−0.74	−0.67	0.25	−0.75	−0.66	0.28	−0.73
		(0.88)	(0.82)	(0.96)	(0.88)	(0.83)	(0.95)	(0.88)	(0.82)	(0.96)
Exclusion restriction	0.08***									
	(0.02)									
Observations	553	139	139	139	139	139	139	139	139	139
R-squared		0.639	0.422	0.700	0.713	0.375	0.772	0.641	0.423	0.700
chi2	70.1	603	284	569	1551	1575	621	922	319	575
AR1	N/A	N	Y	Y	N	Y	Y	N	Y	Y
Fixed effects	N/A	Y	N	Y	Y	N	Y	Y	N	Y
No. countries		41	41	41	41	41	41	41	41	41

Standard errors in parentheses. Time controls for probit model not displayed. ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

exogenous variables, while the scale of subsequent privatizations is primarily driven by economic conditions and domestic political interaction.

As we can see from column one in both tables, *IMF* is positively signed and statistically significant. The larger the volume of IMF loans to country *i*, the greater the likelihood of country *i* adopting privatization at time t_{+1}. However, we find little evidence that IMF support is associated with the scale of privatization. There are several potential explanations for this. The IMF might successfully push governments to adopt a privatization strategy, but governments may not properly implement this strategy. Alternatively, IMF programs are possibly failing borrowing countries by not catalyzing the investment necessary for governments to sell state assets.

Several further exogenous factors are also significant determinants of the likelihood of privatization. The exclusion restriction – that is, emulative diffusion – is positively signed and statistically significant in the probit model across both samples. States herd on the behavior of their peers, and choose to adopt privatization because their neighbors have done so.[12] In the first sample, capital mobility is positively signed and statistically significant, indicating that during this period privatization was a means for developing economies to attract investors. The level of trade competition is also statistically significant, but it is negatively signed in both probit models.[13] States that are more integrated in global trade are less likely to embark on privatization, as they must first overcome domestic opposition from those who benefit from a large state presence in the economy.

In contrast, variation in the scale of asset sales, across both samples, is primarily shaped by domestic political and economic concerns. Firstly, *trade* is statistically significant across both samples, although it is not robust to fixed effects. However, the direction of this effect differs from the probit models. After overcoming the initial hurdle, states that are more integrated with global trade derive more revenue than others in similar circumstances. States that are more integrated with global trade may firstly have to confront powerful sectional interests that favor a greater role for the state in the economy. Once this hurdle has been cleared, however, export-oriented interests have probably tipped the domestic political balance away from policy that favors a large role for the state in the economy. This finding confirms the importance of employing a two-stage process to model privatization. Clearly, there are systematic differences among states that privatize public enterprises and those that do not. The substantive effect of trade competition on privatization revenue is notable. A shift from the 10th to the 90th percentile in levels of trade leads to a one standard deviation increase in the logged value of privatization revenue as a percentage of GDP.

The importance of domestic politics can also be observed in the results for *election*, which are negatively signed and statistically significant in every single TSCS model, across both samples. Governments are evidently cognizant of the damaging political after-effects of state divestiture and so, in an election year, will reduce the scale of asset sales. An election year will result in a decrease in privatization revenue of half a standard deviation.

The ideology of the government in power also affects the volume of revenue from privatization. Government ideology is negatively signed in every TSCS model across the first sample, and reaches levels of statistical significance in six of the nine specifications. During this period, left-leaning governments are associated with lower

levels of state divestiture. The difference between a government of the left in power and a government of the right in power is over half a standard deviation in the logged value of revenue as a percentage of GDP. In the second sample, although government ideology is negatively signed and statistically significant in three models, it also changes signs across the remaining specifications. These results echo those of Schneider, Fink and Tenbücken (2005), who found that partisan effects on infrastructure privatization disappeared, as privatization became a widely accepted phenomenon.

The inability of the executive to negate potential veto players also has a statistically significant effect on privatization. *Checks* is negatively signed and statistically significant in all nine of the panel estimations across the second sample. When the level of checks on the executive moves from the 10th to the 90th percentile, the volume of revenue generated by privatization will fall by over half a standard deviation. Politics is often a struggle over how to divide the spoils or manage the distributional consequences of government policy. The evidence on privatization clearly points towards domestic distributional conflict over the scale of economic reform, rather than the existence of reform measures per se, although the importance of veto players is only statistically significant from 2000 to 2008. When taken together, however, domestic political variables are key drivers of the scale of privatization across both time periods.

Domestic economic conditions also clearly shape the extent of state divestiture. In the first sample period, *debt* is positively signed in all estimations, and statistically significant in seven of the nine models. When levels of external debt shift from the 10th to the 90th percentile, then the proceeds from privatization will increase by nearly two standard deviations.

In contrast, in the second period *GDP per capita* is positively signed and achieves levels of statistical significance in seven of the nine specifications, while inflation is negatively signed and statistically significant across all nine specifications. The difference between levels of inflation at the 10th and 90th percentile equates to a reduction in privatization revenue of nearly one standard deviation. Much of the privatization literature argues that poor states privatize to address an ailing economy, but our results suggest that, initially, states employed privatization as a means to raise revenue to service the external debt and reduce the primary deficit, but over time, once pressing economic demands have been met, privatization revenues were greater in wealthier, more macro-economically stable states.

Finally, our proxy for the initial size of the state sector, *domestic credit to the private sector*, is negatively signed in every specification for the earlier sample, and statistically significant in six of them. In the later sample, this variable changes signs across the models, and only achieves a level of statistical significance in three of them. Clearly, the initial size of the state sector was an important determining factor in the early phase of state divestiture, but this waned in importance, as privatization became a standard policy instrument.[14]

Robustness

For the sake of robustness, we also estimated a number of alternative specifications. Firstly, we repeated the PCSE models with the alternative GLS estimator.[15] The

results remained very similar. We also ran collinearity diagnostics, which indicated that this was not an issue in any of the models. Secondly, we added a number of additional control variables to the base specification, including: a dummy variable to capture the presence of an autonomous region and a dummy variable to capture the presence of multiple levels of subnational government. Our rationale was to account for the effect of federalism on the level of privatization. We also included the XCONST variable from Polity IV (Marshall and Jaggers 2008); a dummy variable to capture the presence of a functioning stock market; and the Rule of Law index from the Worldwide Governance Indicators, for the later sample (2000–2008) (Kaufman, Kraay and Mastruzzi 2009). We also substituted UK legal origin with a dummy variable that records French legal origin. Even with these additional controls, the core results remained unchanged.[16]

Thirdly, we controlled for the effect of regime type. According to Biglaiser and Danis (2002), regime type is an important determinant of privatization. We added the level of democracy (POLITY) to the base specification (Marshall and Jaggers 2008). POLITY was positively signed but statistically insignificant. Otherwise, the results remained the same.

We also included an alternative measure for the initial size of the state-owned sector, taken from the index of economic freedom (Gwartney, Lawson and Norton 2008). In addition, we substituted the variables that measure IMF lending with *World Bank lending and grants as a percentage of GDP*, and *multilateral lending as a percentage of GDP*; replaced capital mobility with *FDI as a percentage of GDP*; and included regional dummies to capture any regional effects. Finally, we repeated our main specifications with *publicly guaranteed debt as a percentage of exports* and *public and publicly guaranteed debt service as a percentage of GNI*. Once again, the results remained unchanged.

Discussion/Conclusion

Few other reform measures have altered the relationship between the state and the productive economy as successive waves of privatization have, and continue to do, across the developing world. State divestiture is now a defining tenet of the modern liberal economy. However, quantitative studies on the determinants of privatization have been limited by data and methodological restrictions. We built on this literature and utilized the comprehensive dataset on privatization from the World Bank as a reliable, cross-national measure of state divestiture over time. We modeled the decision to privatize as a two-stage process, involving an initial decision over whether or not to privatize, and a subsequent decision over how much to sell, and estimated the main determinants of privatization across 77 developing world economies between the years 1988 to 1999, and 41 countries between 2000 to 2008.

Our results generate a number of important insights. Firstly, exogenous and endogenous pressures have different roles to play at different stages of the decision-making process. The initial decision to privatize in developing countries is largely shaped by exogenous incentives. The degree of capital mobility, the desire to emulate privatizing neighbors, and the influence of the IMF, all induced developing economies to adopt privatization as a reform measure. The extent of privatization, however, or what to sell and how much, was shaped by different incentives again.

The politics of trade remain important for the volume of revenue generated by state divestiture, but our results also indicate that this stage of the decision-making process is conditioned by domestic variables. It is no surprise that the impetus to adopt a fractious structural reform such as privatization would emanate from outside the political system, while the factors determining the scale of privatization, once the decision to adopt such a reform has been made, would primarily be a function of domestic political and economic concerns.

This has important implications for the existing empirical literature on privatization. If we return to the explanations for privatization, it is clear that they all have some relevance for the story we present here. This suggests that there is no single uniform explanation for privatization, but rather that different incentives for state divestiture exist at different stages of the decision-making process and across different time periods (see also Meseguer 2004; Doyle 2010). Therefore, in order to adequately understand privatization, we must disaggregate this process into its component parts, rather than treating it as a single transaction. This also has potential implications for other reform measures, such as labor and tax reform.

So what does this mean for a broader understanding regarding the determinants of privatization? Our results for trade competition are interesting. States that are more integrated in global trade are less likely to embark on privatization, but when they commit to privatization their efforts are more extensive. After overcoming the initial hurdle, states that are more integrated with global trade derive more revenue than others in similar circumstances. Clearly, states seek to reap the benefits from international economic integration, but this is also conditional.

The IMF has a role in encouraging states to adopt privatization, but there is little evidence that it takes an active part in overruling government decisions regarding what to divest and on what scale. Rather, this is primarily a product of domestic politics: electoral concerns, the strategic interest of political parties and the ability of the governing administration to negate potential veto players. What is more, during the first phase of privatization, these political battles occurred against a backdrop of pressing external debt obligations, whereby developing world economies divested state enterprises in order to raise revenue to pay creditors and reduce their primary deficit. However, during the second phase of privatization, although the political struggles remained prevalent, the economic realities underpinning privatization altered. During this period, increased revenue from state divesture was associated with wealthier, more macro-economically stable states. When pressing macroeconomic concerns have been addressed, and privatization is more widespread, the purchasers of divested state assets began to seek stable political environments and the protection of property rights (see Jensen 2008; Biglaiser and Staats 2009).

Notes

1. Scholars have long analyzed policy as a multi-stage process. In this paper, by a two-stage process, we are explicitly referring to the manner in which privatization is modeled in quantitative analyses.
2. Many previous empirical studies on privatization have been limited by a lack of reliable and comparable data. The new World Bank Privatization Database has taken existing data on privatization between 1988 and 1999, from the old World Bank Privatization Transactions Database, and combined it with newly released data on privatization in the developing world between 2000 and 2008.

3. A full list of all countries included in this analysis can be found in the online appendix at the author's website.
4. The vast majority of the data represents proceeds raised by central governments only, bar a handful of exceptions for state level utilities in a small number of major countries.
5. In this section, we discuss those countries with the largest share of revenue from privatization by region.
6. See Clifton, Comín and Díaz Fuentes (2006) who note that EU liberalization directives largely determined the timing and scale of privatization in the EU states.
7. The World Bank alone accounts for a vast amount of research on this topic.
8. Graduate economic training of civil servants in the US and Europe may also have contributed to the re-evaluation of privatization.
9. Descriptive statistics, plus full descriptions for all variables, can be found in the appendix.
10. Every so often, states have nationalized, expropriated, or confiscated private property. Unfortunately, no adequate data exists on the extent to which states have nationalized or rolled back on privatization so it is not possible to calculate *net privatization*.
11. Taken from the Polity IV dataset; right was coded as 1, center as 2 and left as 3.
12. Although we cannot identify the exact causal mechanism underlying this process.
13. *GDP per capita* is also positively signed and statistically significant across both probit models.
14. *Capital mobility* changed signs across the specifications and only reached levels of statistical significance in a handful of them. Likewise *GDP growth* and the *UK legal system*.
15. The results of these robustness tests can be found in the appendix.
16. The presence of a functioning stock market had a strong and significant effect on the decision to privatize but not on the scale of privatization.

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